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APPLICATION NO.	FILED DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/978,271	10/17/2003	Chan Jae Lee	09/161,007/4 NPLS00	4445

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EXAMINER

QUARTERMAN, KEVIN J

ART UNIT PAPER NUMBER

2879

DATE MAILED: 05/20/2003

Please find below and or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/978,271

Applicant(s)

LEE ET AL.

Examiner

Kevin Quarterman

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 a. In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Chuang (US 6445122).

3. Regarding independent claim 1, Figure 3 of Chuang shows a field emission display device comprising a substrate (52); an anode electrode (62) formed on the substrate; an insulation layer (56) disposed on the substrate covering the anode electrodes except a pixel area formed on the anode electrode; a phosphor layer (66) disposed on the pixel area in contact with the anode electrode; a cathode electrode (58) formed on the insulation layer between the phosphor layers; and a carbon nanotube emitter (60) disposed on the cathode electrode.

4. Regarding claim 2, Figure 2 of Chuang shows the carbon nanotube emitter being disposed at least one edge of the cathode electrode.

5. Regarding claims 3 and 13, Figure 3 of Chuang shows the anode electrode and the cathode electrode having a structure of plural line patterns and intersecting each other at a right angle.

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6. Regarding claim 4, Figure 3 of Chuang shows the carbon nanotube emitter corresponding each phosphor layer being arranged at the same intervals as the phosphor layers covering an edge of the cathode electrode.

7. Regarding claim 5, Figure 3 of Chuang shows the carbon nanotube emitter being disposed in a line pattern covering an edge of the cathode electrode.

8. Regarding claim 6, Figure 3 of Chuang shows the carbon nanotube emitter corresponding each phosphor layer being arranged at the same intervals as the phosphor layers covering both edges of the cathode electrode.

9. Regarding claim 7, Figure 3 of Chuang shows the carbon nanotube emitter being disposed in a line pattern covering both edges of the cathode electrode.

10. Regarding claim 8, Figure 1B of Chuang shows that a gate electrode may be disposed between the anode electrode and the cathode electrode.

11. Regarding claims 9 and 14, Figure 1B of Chuang shows a transparent front substrate (14) coupled with the substrate by a sealant (38) while a space between the substrate and the front substrate is kept as vacuum.

12. Regarding claims 10 and 15, Figure 1B of Chuang shows the front substrate having a transparent electrode (22) on a surface thereof facing the substrate.

13. Regarding independent claims 11 and 12, Chuang discloses all of the limitations of claims 1-8, as discussed earlier.

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**Conclusion**

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Karpov (US 5965971) discloses an edge emitter display device. Yamaura (US 6468584) discloses a conductive thin film patterned substrate.

**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Quarterman whose telephone number is (703) 308-6546. The examiner can normally be reached on M-F (8-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (703) 305-4794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Kevin Quarterman  
Examiner  
Art Unit 2879

kq *ke*  
May 16, 2003

*Vip Patel*  
Vip Patel  
Primary Examiner  
Art Unit 2879